REMARKS/ARGUMENTS

Favorable reconsideration of this application in light of the following discussion is respectfully requested.

Claims 4-7 and 12-15 are presently active in this case. The present Amendment amends independent Claims 4, 12, and 14 without introducing any new matter or raising new issues. See Figure 1 of the Specification.

In the outstanding Office Action, claim 7 was objected to; and Claims 4-6, 12, 14, and 15 were rejected under 35 U.S.C. §103(a) as unpatentable over Nakanishi et al. (U.S. Patent No. 6,728,034, herein "Nakanishi") in view of Morton et al. (U.S. Patent No. 5,999,318, herein "Morton"). Claims 7 and 13 were rejected under 35 U.S.C. §103(a) as unpatentable over Nakanishi and Morton in view of Chen et al. (U.S. Patent No. 5,914,811, herein "Chen").

In response to the objection to Claim 7, Applicants respectfully traverse. Applicants respectfully point out that because Claim 7 depends from Claim 5, and not from Claim 6, the saw-tooth shape approximated by stairs feature is clear. If the Examiner disagrees, then the Examiner is invited to contact the undersigned so that this issue can be further addressed.

In light of the amendments to independent Claim 4, Applicants respectfully request reconsideration of the rejections of Claims 4-7 under 35 U.S.C. §103(a), and traverse the rejections, as discussed next.

Briefly recapitulating, Applicants' Claim 4 (as amended) relates to a diffraction element and includes, *inter alia*: a substrate with an incoming-side surface opposite to an outgoing-side surface; an incoming-side diffraction grating having a grating pitch; a first outgoing-side diffraction grating configured to receive light not diffracted by the incoming-side diffraction grating; a second outgoing-side diffraction grating having a grating pitch, covered by a reflective layer, and having a concave/convex shape in cross-section. The

second outgoing-side diffraction grating is positioned on a light path of a light diffracted by the incoming-side diffraction grating, wherein the incoming-side diffraction grating is configured relative to the light source such that only a center portion of the external light, having a stronger intensity than a peripheral portion of the external light, is not diffracted by the first incoming side diffraction grating. Further, the grating pitch of the incoming-side diffraction grating is substantially equal to a grating pitch of the second outgoing-side diffraction grating.

As a consequence of the incoming-side diffraction grating configuration, as explained in Applicants' Specification at page 14, lines 10-14 with corresponding Figure 1, Applicants' invention improves upon conventional diffraction elements because it can reduce the effects related to changes in propagation direction of the diffracted light when the wavelength of the diffracted light is not constant.

In a non-limiting embodiment explained in Applicants' specification in accordance with the illustration of Figure 1 (and Example 1), a center portion of the external light is passed through the first incoming side diffraction grating, about 85% of the light emitted from the semiconductor laser 107 will reach the grating 103 without being diffracted by the incoming side diffraction grating, while 5% of the light will be detected by the receptor 108 via the grating 102 and the reflective diffraction grating 105.

Regarding claim 12, in a non-limiting embodiment explained in applicant's specification in accordance with the illustration of Figure 2 (and Example 2), the first and second outgoing-side diffraction gratings receive light diffracted by the incoming-side diffraction grating; wherein the incoming-side diffraction grating is configured relative to the light source such that only a center portion of the external light, having a stronger intensity than a peripheral portion of the external light, is not diffracted by the first incoming side diffraction grating.

Turning now to the applied references, Nakanishi describes a diffractive optical element, however, Nakanishi fails to teach or suggest that the incoming-side diffraction grating is configured relative to an external light source such that only a center portion of the external light is not diffracted by the first incoming side diffraction grating and received by the first outgoing side diffraction grating. In all the embodiments of Nakanishi, the external light not diffracted by the diffractive optical element pattern 4 passes through the substrate 1 without reaching an outgoing diffraction element. That is, Nakanishi clearly explains that "second diffractive optical element patterns 9 and 10 are positioned so as to be either directly incident to diffracted light that is produced by the first diffractive optical element pattern 4 or incident to the diffracted light after it has been subjected to total internal reflection by the main surfaces two times."[1] None of the outgoing side diffraction elements of Nakanishi receive light which is not diffracted by the incoming side diffraction grating. Accordingly, Nakanishi fails to teach or suggest that the incoming-side diffraction grating is configured relative to the light source such that only a center portion of the external light is not diffracted by the first incoming side diffraction grating and received by the first outgoing side diffraction grating, as defined by Applicants' Claim 4.

The secondary references Chen and Morton do not remedy the deficiencies of Nakanishi. Chen is concerned with polarizing beam splitters. Accordingly, Chen is also silent on the incoming-side diffraction grating being configured relative to a light source such that only a center portion of the external light is not diffracted by the first incoming side diffraction grating and received by the first outgoing side diffraction grating, as defined by Applicants' Claim 4.

Morton describes an extra manufacturing step to cover a diffraction grating with a

[1] See Nakanishi at column 10, lines 44-48.

reflective layer made of aluminum.[2] However, Morton is also silent on any particular arrangement of diffraction gratings, and fails to teach or suggest that an incoming-side diffraction grating is configured relative to a light source such that only a center portion of external light is not diffracted by the first incoming side diffraction grating and received by first outgoing side diffraction grating, as defined by amended Claim 4.

Therefore, even assuming *arguendo* that the combination of Nakanishi, Chen and/or Morton is assumed to be proper, the combination fails to teach every element of the claimed invention. Specifically, the combination fails to teach or suggest (a) that the incoming-side diffraction grating is configured relative to a light source such that only a center portion of the external light is not diffracted by the first incoming side diffraction grating and received by the first outgoing side diffraction grating or (b) that a grating pitch of the incoming-side diffraction grating is substantially equal to a grating pitch of the *second* outgoing-side diffraction grating, as recited in Applicants' Claim 4. Accordingly, for at least the above stated reasons, Applicants respectfully traverse, and request reconsideration of, this rejection based on these patents.[3]

Independent Claim 14 recites limitations analogous to the limitations recited in independent Claim 4. Similarly, claim 12 defines that "the incoming-side diffraction grating is configured relative to the light source such that only a center portion of the external light, having a stronger intensity than a peripheral portion of the external light, is not diffracted by the incoming side diffraction grating." Accordingly, Applicants respectfully submit that the rejections of Claims 12, and 14, and all associated dependent claims, are also believed to be overcome.

---

[2] See Morton in the Abstract, and at column 4, lines 6-11.
[3] See MPEP 2142 stating, as one of the three "basic criteria [that] must be met" in order to establish a *prima facie* case of obviousness, that "the prior art reference (or references when combined) must teach or suggest all the claim limitations," (emphasis added). See also MPEP 2143.03: "All words in a claim must be considered in judging the patentability of that claim against the prior art."

Consequently, in view of the present amendment, no further issues are believed to be outstanding in the present application, and the present application is believed to be in condition for formal Allowance. A Notice of Allowance for Claims 4-7 and 12-15 is earnestly solicited.

Should the Examiner deem that any further action is necessary to place this application in even better form for allowance, the Examiner is encouraged to contact Applicants' undersigned representative at the below listed telephone number.

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,
MAIER & NEUSTADT, P.C.

Gregory J. Maier
Attorney of Record
Registration No. 25,599

W. Todd Baker
Registration No. 45,265

Customer Number
22850

Tel: (703) 413-3000
Fax: (703) 413 -2220
(OSMMN 06/04)